Type 1 vs Type 2 Error

Type 1 Error

A type I error appears when the null hypothesis (H0) of an experiment is true, but still, it is rejected. It is stating something which is not present or a false hit. A type I error is often called a false positive (an event that shows that a given condition is present when it is absent).

Type 2 Error

A type II error appears when the null hypothesis is false but mistakenly fails to be refused. It is losing to state what is present and a miss. A type II error is also known as false negative (where a real hit was rejected by the test and is observed as a miss), in an experiment checking for a condition with a final outcome of true or false.

Table of Type 1 and Type 2 Error

Error Types	When H_0 is True	When H_0 is False
Don't Reject	Correct Decision (True negative) Probability = 1 − α	Type II Error (False negative) Probability = β
Reject	Type II Error (False Positive) Probability = α	Correct Decision (True Positive) Probability = 1 − β

Type I and Type II Errors Example

Let us consider a null hypothesis – A man is not guilty of a crime.

Then in this case:

Type I error (False Positive)	Type II error (False Negative)
He is condemned to crime, though he is not guilty or committed the crime.	He is condemned not guilty when the court actually does commit the crime by letting the guilty one go free.